

ABSTRACT OF THE DISCLOSURE

An apparatus for shear testing bonds on 8" and 12" silicon substrates. The apparatus includes a removable platform for securing the 8" wafer and a vacuum chuck for securing a 12" wafer and the removable platform at the same time. A control module controls a moving mechanism to shift a probe to contact the solder ball of the 12" substrate secured on the vacuum chuck or the solder ball of the 8" wafer on the removable platform when the removable platform is fixed on the vacuum chuck. The moving mechanism moves the probe in a direction to separate the solder ball from the wafer. A sensor measures the pulling force exerted on the probe when the probe is moved in a direction and separates the solder ball from the wafer.